Epoch 1/15

3363/3363 [==============================] - 25007s 7s/step - loss: 2.4854 - accuracy: 0.6519 - val\_loss: 0.8723 - val\_accuracy: 0.6314 - lr: 5.0000e-05

Epoch 2/15

3363/3363 [==============================] - 25198s 7s/step - loss: 0.5602 - accuracy: 0.7525 - val\_loss: 0.7387 - val\_accuracy: 0.6851 - lr: 5.0000e-05

Epoch 3/15

3363/3363 [==============================] - 24695s 7s/step - loss: 0.4643 - accuracy: 0.7970 - val\_loss: 0.6131 - val\_accuracy: 0.6528 - lr: 5.0000e-05

Epoch 4/15

3363/3363 [==============================] - 25551s 8s/step - loss: 0.4095 - accuracy: 0.8138 - val\_loss: 0.5907 - val\_accuracy: 0.6492 - lr: 5.0000e-05

Epoch 5/15

3363/3363 [==============================] - 25300s 8s/step - loss: 0.3848 - accuracy: 0.8244 - val\_loss: 0.7329 - val\_accuracy: 0.6390 - lr: 5.0000e-05

Epoch 6/15

3363/3363 [==============================] - 25249s 8s/step - loss: 0.3628 - accuracy: 0.8384 - val\_loss: 0.7123 - val\_accuracy: 0.6421 - lr: 5.0000e-05

Epoch 7/15

3363/3363 [==============================] - 24757s 7s/step - loss: 0.2841 - accuracy: 0.8830 - val\_loss: 0.9516 - val\_accuracy: 0.6316 - lr: 2.5000e-05

2883/2883 [==============================] - 1174s 407ms/step

Evaluation Metrics:

Precision: 0.6763

Recall: 0.5814

F1 Score: 0.6252

ROC AUC: 0.7613

PR AUC: 0.7923

MCC: 0.3061

y\_pred = (test\_scores > 0.6).astype(int)

...: y\_true = y\_test.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

...:

Evaluation Metrics:

Precision: 0.7266

Recall: 0.4905

F1 Score: 0.5857

ROC AUC: 0.7613

PR AUC: 0.7923

MCC: 0.3235

In [10]: y\_pred = (test\_scores > 0.7).astype(int)

...: y\_true = y\_test.astype(int)

...:

...: # Calculate evaluation metrics

...: precision = precision\_score(y\_true, y\_pred)

...: recall = recall\_score(y\_true, y\_pred)

...: f1 = f1\_score(y\_true, y\_pred)

...: roc\_auc = roc\_auc\_score(y\_true, test\_scores)

...: pr\_auc = average\_precision\_score(y\_true, test\_scores)

...: mcc = matthews\_corrcoef(y\_true, y\_pred)

...:

...: # Display evaluation metrics

...: print("\nEvaluation Metrics:")

...: print(f'Precision: {precision:.4f}')

...: print(f'Recall: {recall:.4f}')

...: print(f'F1 Score: {f1:.4f}')

...: print(f'ROC AUC: {roc\_auc:.4f}')

...: print(f'PR AUC: {pr\_auc:.4f}')

...: print(f'MCC: {mcc:.4f}')

...:

Evaluation Metrics:

Precision: 0.7828

Recall: 0.4559

F1 Score: 0.5762

ROC AUC: 0.7613

PR AUC: 0.7923

MCC: 0.3626

Εικόνα που περιέχει κείμενο, γράφημα, διάγραμμα, γραμμή

Περιγραφή που δημιουργήθηκε αυτόματα

Εικόνα που περιέχει κείμενο, στιγμιότυπο οθόνης, διάγραμμα, ορθογώνιο παραλληλόγραμμο

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Περιγραφή που δημιουργήθηκε αυτόματα

Triplet 1 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/ei\_qna, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/StatisticalData

157/157 [==============================] - 65s 415ms/step

Intercept 0.5004581353927426

Prediction\_local [0.12701684]

Right: 0.017257497

Feature Importances (Coefficients):

Predicate: -0.5288916549859541

Object: 0.15306362769958579

Subject: 0.002386733207960087

Triplet 2 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/glossaryArticle118, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/hasReference, Object: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/referenceSource59

157/157 [==============================] - 65s 414ms/step

Intercept 0.2549602392491923

Prediction\_local [0.41848109]

Right: 0.4183538

Feature Importances (Coefficients):

Predicate: 0.3029166532927433

Object: -0.10603865018462286

Subject: -0.0333571543768444

Triplet 3 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/fats\_08, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/level, Object: 4

157/157 [==============================] - 62s 393ms/step

Intercept 0.2999140741022574

Prediction\_local [0.49449213]

Right: 0.4067175

Feature Importances (Coefficients):

Predicate: 0.29046954834087685

Object: -0.08580764067571298

Subject: -0.010083855792833305

Triplet 4 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/hlth\_ehis\_aw1u, Predicate: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/term, Object: hlth\_ehis\_aw1u

157/157 [==============================] - 65s 417ms/step

Intercept 0.23350207532483025

Prediction\_local [0.35888493]

Right: 0.25473854

Feature Importances (Coefficients):

Predicate: 0.30933190522162346

Object: -0.19713307323823498

Subject: 0.013184023759410952

Triplet 5 (Original):

Subject: https://ec.europa.eu/eurostat/NLP4StatRef/knowledge/paragraph9574\_3455, Predicate: http://www.w3.org/1999/02/22-rdf-syntax-ns#type, Object: https://ec.europa.eu/eurostat/NLP4StatRef/ontology/Paragraph

157/157 [==============================] - 62s 397ms/step

Intercept 0.5138430073847197

Prediction\_local [0.11845531]

Right: 0.01653164

Feature Importances (Coefficients):

Predicate: -0.5433300481514919

Object: 0.1356588944201648

Subject: 0.012283460254623858